Ichthyological note

© SFI

Received: 3 May 2017
Accepted: 17 Oct. 2017
Editor: R. Causse

First record of *Odontobutis haifengensis* (Gobioidei, Odontobutidae) from the Rongjiang River, Eastern Guangdong, China

by

Liqiang ZHONG* (1), Huiwen XIAO (2), Daming LI (1), Shengkai TANG (1) & Xiaohui CHEN* (1)

Résumé – Premier signalement d'*Odontobutis haifengensis* (Gobioidei, Odontobutidae) dans la rivière du Rongjiang, est-Guangdong, Chine.

L'espèce *Odontobutis haifengensis* Chen, 1985, est connue pour avoir une répartition restreinte aux rivières du Longjin et Dongjiang, dans la partie sud de la province du Guangdong, en Chine. Récemment, deux individus de cette espèce ont été capturés dans la rivière du Rongjiang, dans cette même province. Cette étude présente une description partielle et des mesures morphologiques du spécimen conservé. Ces signalements étendent la zone de répartition précédemment connue pour l'espèce *O. haifengensis* vers la partie orientale de la province du Guangdong, Chine.

Key words. – Odontobutidae – *Odontobutis haifengensis* – China – Eastern Guangdong – Rongjiang River – New record.

The genus *Odontobutis* has a limited distribution in far-east Asia and comprises eight species (Chae, 1999; Chen *et al.*, 2002; Iwata and Sakai, 2002; Wu and Zhong, 2009). Chen and Zheng (1985) described the species *Odontobutis haifengensis* based on specimens collected from the Longjin River in Haifeng County, Guangdong Province, China. The species is characteristically found in shallow waters of streams and rivers, especially in zones where substrata consist of mixed sand, small stones and aquatic plants. Its known distribution has been restricted to the Longjin and Dongjiang rivers in Southern Guangdong Province, China (Chen and Zheng, 1985; Wu, 1991; Wu *et al.*, 1993; Wu and Zhong, 2009). *Odontobutis haifengensis* is endangered, and categorizes as vulnerable on the China Species Red List (Wang and Xie, 2004) and Red List of China's Biodiversity (Ministry of Environmental Protection and Chinese Academy of Sciences, 2013).

This paper reports the capture of two specimens of *O. haifengensis* from different sites of the Rongjiang River. These records extend the known distribution range of this species eastward in Guangdong Province, China.

MATERIAL AND METHODS

A specimen of *O. haifengensis* was caught with diddle-net on 8 August 2016 from a stream flowing to Beihe branch of the Rongjiang River in Fengshun County, Guangdong Province, China (Fig. 1). However, the individual was not preserved, but photographed (Fig. 2). On 17 October 2016, a second specimen was

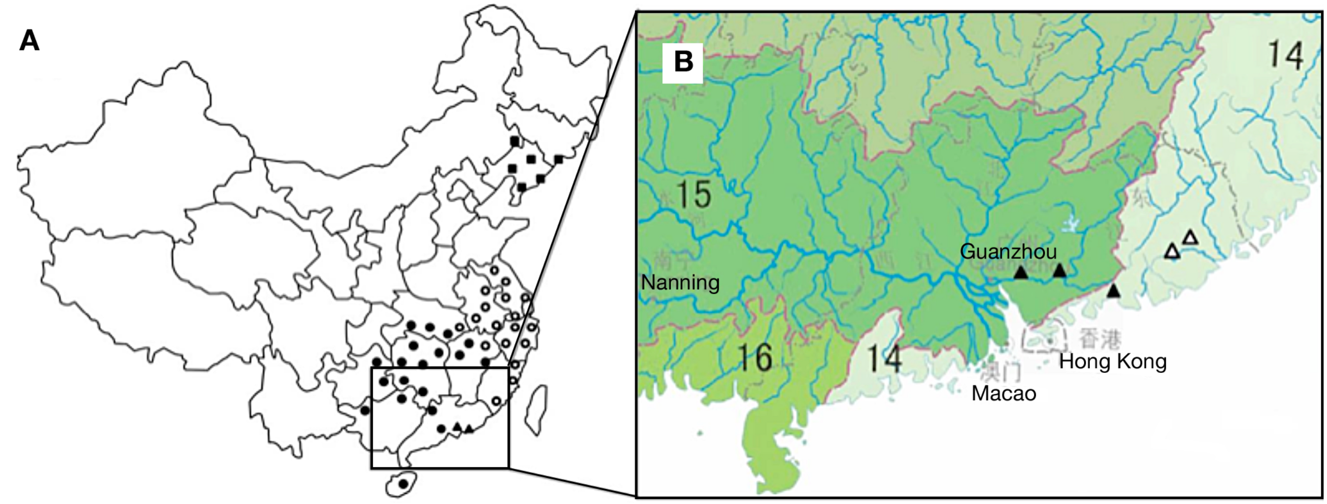

Figure 1. – **A**: Geographic distribution of *Odontobutis* species in China, based on the literature. ▲ = *O. haifengensis*; ○ = *O. potamophila*; ● = *O. sinensis*; ■ = *O. yaluensis*. **B**: Geographical distribution of known captures of *O. haifengensis*. ▲ = records by Chen and Zheng (1985), Wu (1991) and Wu and Zhong (2009); △ = new records from the present study. Numbers indicate different river drainages separated by mountains.

---

(1) Freshwater Fisheries Research Institute of Jiangsu Province, Nanjing, 210017, China. [ldm8212@126.com] [tskwell@163.com]
(2) Su'antang Traditional Chinese Medicine Clinic, Jieyang, 522000, China. [15889171270@139.com]
* Corresponding authors [lqzhongffri@hotmail.com] [xhchenffri@hotmail.com]

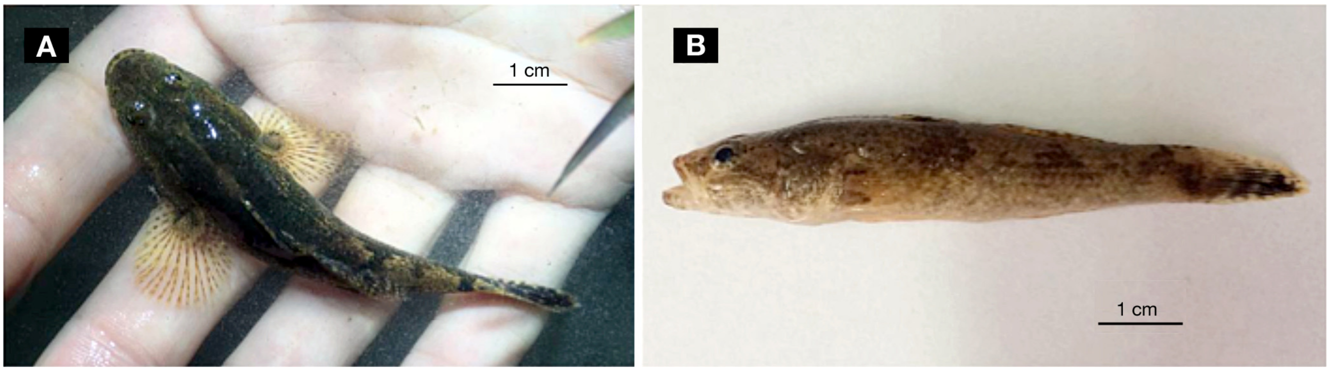

Figure 2. – Two specimens of *O. haifengensis* captured in Rongjiang River. The first specimen was caught on 8 August 2016 (**A**), the second specimen was caught on 17 October 2016, 64.7 mm SL (**B**).

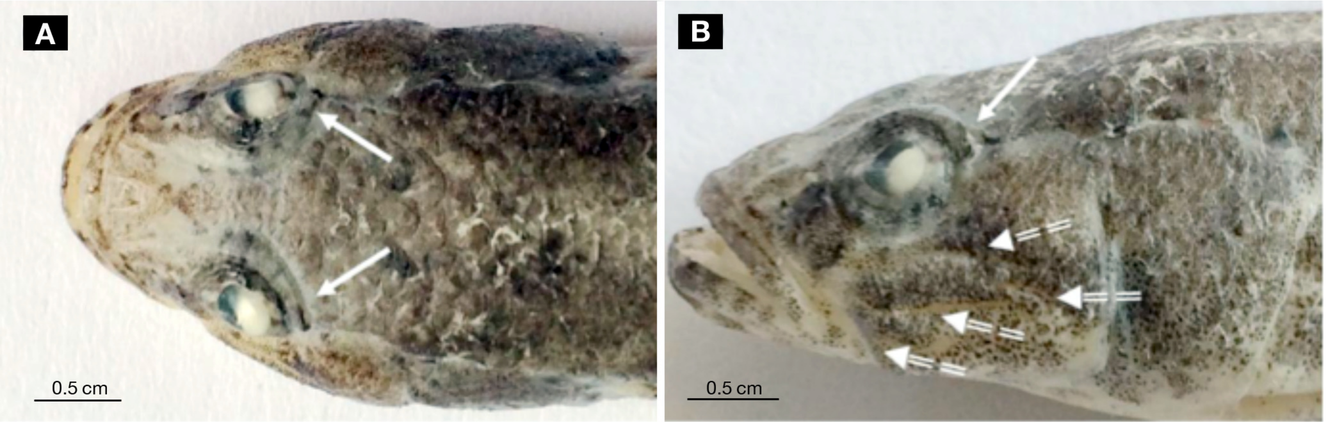

Figure 3. – **A**: Regularly arranged occipital scales of *O. haifengensis*; **B**: Cephalic lateral line system of *O. haifengensis*. Solid arrows = sensory canal; dotted arrows = sensory rows of papilla.

collected with diddle-net from another stream flowing to Nanhe branch of the Rongjiang River about 50 km away in Jiexi County, Guangdong Province, China (Fig. 2). This specimen was brought to laboratory for morphological identification following Chen and Zheng (1985), Wu (1991) and Wu and Zhong (2009). All measurements were made point-to-point with a vernier calliper (precision 0.1 mm). The specimen was preserved in 70% ethanol and deposited in the collection of Freshwater Fisheries Research Institute of Jiangsu Province with the reference number JSFFRI-17003.

RESULTS

The specimen was a male of 78.1 mm total length (TL), 64.7 mm standard length (SL) and body weight of 4.18 g. Occipital scales regularly arranged (Fig. 3A), and only a short sensory canal C present posterodorsally to eye (Fig. 3B). Main morphometric parameters and respective body proportions are presented in table I. The specimen was easily identified due to its lateral scale row and according to the description of Chen and Zheng (1985), Wu (1991), Wu and Zhong (2009).

DISCUSSION

The genus *Odontobutis* is distributed mainly in far-east Asia and is composed of eight species: *O. haifengensis*, *O. hikimius* Iwata & Sakai, 2002, *O. interrupta* Iwata & Jeon, 1985, *O. obscura* (Temminck & Schlegel, 1845), *O. platycephala* Iwata & Jeon, 1985, *O. potamophila* (Günther, 1861), *O. sinensis* Wu, Chen & Chong, 2002, and *O. yaluensis* Wu, Wu & Xie, 1993. *Odontobutis interrupta* and *O. platycephala* are endemic to Korean Peninsula (Chae, 1999; Iwata *et al*., 1985), *O. hikimius* is endemic to Japan (Iwata and Sakai, 2002) and *O. obscura* is distributed in Japan and Korea (Chae, 1999). The other four *Odontobutis* species are endemic to China. Their distribution is considerably regular (Fig. 1A): *O. haifengensis* only in the Longjinhe and Dongjiang rivers; *O. potamophila* in the middle and lower reaches of the Yangtze River, the Qiantangjiang River and the Minjiang River; *O. sinensis* in the upper and middle reaches of the Yangtze River and the Pearl River; *O. yaluensis* in the Liaohe and Yalu rivers (Wu *et al*., 1993; Wu *et al*., 2002; Wu and Zhong, 2009).

Odontobutis haifengensis is clearly distinguishable from all other congeners by having the least lateral scale row (29-33) and 11-13 transverse scale row (vs. 34-52 and 14-22 in other *Odontobutis* species, respectively), with sensory canal C (vs. without sensory canal C in *O. obscura* and *O. sinensis*), without sensory canal F (vs. with sensory canal F in *O. platycephala*), occipital scales regularly arranged (vs. occipital scales spirally arranged in *O. yaluensis*).

The comparison of the main morphometric measurements among specimens described in the papers of Chen and Zheng (1985), Wu (1991) and the individual caught from the Rongjiang River (Tab. I) indicated that nearly all measurements were within

Table I. – Comparison of some morphometric measurements among *O. haifengensis* specimens reported in the literature and in the present study.

Character	Present study (n = 1)	Chen and Zheng (1985) (n = 12)	Wu (1991) (n = 11)	Wu and Zhong (2009) (n = 7)
Total length (TL, mm)	78.1	60-124	–	–
Standard length (SL, mm)	64.7	46-99	68.5-107	51-87
% SL				
Body depth (BD)	20.4	18.2-24.4	16.9-21.3	18.5-24.4
Head length (HL)	37.0	35.7-41.7	37.0-40.0	35.7-40.0
Caudal peduncle length (CPL)	21.5	17.2-23.8	–	–
Caudal peduncle depth (CPD)	11.0	10.3-13.0	–	–
% HL				
Head width (HW)	59.1	58.8-66.7	–	–
Snout length (SL)	27.8	23.8-27.8	23.8-31.3	24.4-27.8
Eye diameter (ED)	16.4	15.6-18.5	14.7-16.1	15.4-18.2
Interorbital width (IW)	20.3	17.2-21.3	13.9-19.2	17.2-21.3
% CPL				
Caudal peduncle depth (CPD)	53.0	52.6-66.7	52.6-58.8	52.6-62.5
Dorsal fin rays	VII, I-9	VII, I-8-9	VI–VIII, I-8-9	VI-VIII, I-8-9 (mostly VII, I-9)
Anal fin rays	I-7	I-6-8 (mostly I-7)	I-7-8	I-7-8 (mostly I-7)
Pectoral fin rays	16	14-16	15-16	15-16 (mostly 16)
Pelvic fins rays	I-5	5	I-5	I-5
Caudal fin rays	17	-	15-16	17
Lateral scale row	32	31-33	29-33	29-32 (mostly 29)
Transverse scale row	12	11-12	11-12	12-13 (mostly 12)
Predorsal scale row	23	20-25	–	21-23

the reported range, with two exceptions. The eye diameter and interorbital width were in the reported range of Chen and Zheng (1985) and Wu and Zhong (2009), but bigger than Wu's report (1991) (16.4 and 20.3 mm vs 14.7-16.1 mm and 13.9-19.2 mm, respectively). The specimen of the present study had all the previously reported diagnostic morphological characters of *O. haifengensis*.

The Rongjiang River, the second longest river in Eastern Guangdong, is fed by two branches: Nanhe and Beihe. Nanhe and Beihe are separated by Dabeishan Mountain, and join together 50 km to the estuary. Two specimens of *O. haifengensis* were caught from both branches of the Rongjiang River. Therefore, our findings showed that *O. haifengensis* could be distributed in the entire Rongjiang River Basin.

In conclusion, *O. haifengensis* was recorded here for the first time in the Rongjiang River. The results of this study are helpful for further investigation in the biology of this species. A detailed survey of the fish in the wild is urgently needed before appropriate protection plans can be devised.

Acknowledgements. – This study was partially funded by China Agriculture Research System (CARS-46) and the Agricultural Financial Fund of Jiangsu Province (2016-2017). The authors are grateful to Shujie Liu, Binbin Zhan, Wei Han and Minwen Zhong for their help in field assistance.

REFERENCES

CHAE B.S., 1999. – First record of odontobutid fish, *Odontobutis obscura* (Pisces, Gobioidei) from Korea. *Korean J. Ichthyol.*, 11(1): 12-16.

CHEN W. & ZHENG C.Y., 1985. – On three new species of the family Eleotridae from Guangdong Province, China. *J. Jinan Univ. Nat. Sci. Med. Edit.*, 6(1): 78-85.

CHEN I.S., KOTTELAT M. & WU H.L., 2002. – A new genus of freshwater sleeper (Teleostei: Odontobutidae) from southern China and mainland southeast Asia. *J. Fish. Soc. Taiwan,* 29(3): 229-235.

IWATA A. & SAKAI H., 2002. – *Odontobutis hikimius* n. sp.: a new freshwater goby from Japan, with a key to species of the genus. *Copeia,* (1): 104-110.

IWATA A., JEON S.R., MIZUNO N. & CHOI K.C., 1985. – A revision of the eleotrid goby genus *Odontobutis* in Japan, Korea and China. *Jpn. J. Ichthyol.,* 31(4): 373-388.

Ministry of Environmental Protection & Chinese Academy of Sciences, 2013. – Red List of China's Biodiversity: Inland Fishes. http://www.zhb.gov.cn/gkml/hbb/bgg/201309/W020130917614244055331.pdf. Accessed Feb. 2015.

WANG S. & XIE Y., 2004. – China Species Red List: Vol. I, Red list. 468 + 225 p. Beijing: Higher Education Press.

WU H.L., 1991. – Gobioidei. *In*: The Freshwater Fishes of Guangdong Province (Pan J.H., Zhong L., Zheng C.Y., Wu H.L. & Liu J.H., eds), pp. 437-438. Guangzhou: Guangdong Science and Technology Press.

WU H.L. & ZHONG J.S., 2009. – Taxonomic research of the Gobioidei (Perciformes: Gobioidei) in China. *Korean J. Ichthyol.*, 21(suppl.): 63-72.

WU H.L., WU X.Q. & XIE Y.H., 1993. – A revision of the genus *Odontobutis* from China with description of a new species. *J. Shanghai Ocean Univ.,* 2(1): 52-61.

WU H.L., CHEN I.S. & CHONG D.H., 2002. – A new species of the genus *Odontobutis* (Perciformes, Odontobutidae) from China. *J. Shanghai Ocean Univ.,* 11(1): 6-12.